

SEQUENCE LISTING

<110> Summers, Anne O.
Caguiat, Jonathan

<120> Metal Binding Proteins, Recombinant Host Cells and
Methods

<130> 79-00

<140> unassigned
<141> 2001-10-12

<150> US 60/240,465
<151> 2000-10-12

<160> 18

<170> PatentIn Ver. 2.0

PER
#3

<210> 1
<211> 435
<212> DNA
<213> *Shigella flexneri*, Tn21 of Plasmid R100

<400> 1
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gtggagacaa tccgcttcta tcagcgcaag ggcctgtgc gggAACCGGA caagcttac 120
ggcagcatcc gccgctatgg ggaggcggac gtggttcgaa tgaaattcgt gaaatcgca 180
cagcggctgg ggttcagtct ggacgagatt gcccagctgt tgccgctcga cgatggcacc 240
caactgcgagg agggcagcag cctggccgaa cacaagctca aggacgtgcg cgagaagatg 300
gccgacttgg cgccatgga aaccgtgtc tctgaactcg tgcgcctg ccatgcacga 360
aaggggaaatg tttctgccc gttgatcgcg tcactacagg gcgaagcagg cctggcaagg 420
tcagctatgc cttag 435

<210> 2
<211> 144
<212> PRT
<213> *Shigella flexneri*, Tn21 of Plasmid R100

<400> 2
Met Glu Asn Asn Leu Glu Asn Leu Thr Ile Gly Val Phe Ala Lys Ala
1 5 10 15

Ala Gly Val Asn Val Glu Thr Ile Arg Phe Tyr Gln Arg Lys Gly Leu
20 25 30

Leu Arg Glu Pro Asp Lys Pro Tyr Gly Ser Ile Arg Arg Tyr Gly Glu
35 40 45

Ala Asp Val Val Arg Val Lys Phe Val Lys Ser Ala Gln Arg Leu Gly
50 55 60

Phe Ser Leu Asp Glu Ile Ala Glu Leu Leu Arg Leu Asp Asp Gly Thr
65 70 75 80

His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val
85 90 95
Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu
100 105 110
Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Leu
115 120 125
Ile Ala Ser Leu Gln Gly Glu Ala Gly Leu Ala Arg Ser Ala Met Pro
130 135 140

<210> 3
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 3
atgacacact gcgaggaggc cagcagccctg gccgaacaca agctcaagga cgtgcgcgag 60
aagatggccg acttggcgcg catggaaacc gtgtgtctg aactcgtgtg cgcctgccat 120
gcacgaaagg ggaatgttgc ctgcccgttg atcgcgtcac tacaggatc ctcaggcacc 180
caactgcgagg aggcacgcag cctggccgaa cacaagctca aggacgtgcg cgagaagatg 240
gccgacttgg cgccatggaa aaccgtgtcg tctgaactcg tgtgcgcctg ccatgcacga 300
aaggggaaatg tttccctgccc g 321

<210> 4
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 4
Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95
Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110
Pro Gln Phe Glu Lys
115

<210> 5
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 5
Met Thr His Cys Glu Glu Val Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15
Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30
Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45
Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60
Val Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80
Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95
Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110
Pro Gln Phe Glu Lys
115

<210> 6
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 6
Met Thr His Cys Glu Glu Ala Ser Ser Leu Val Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Thr Met Ala Asp Leu Ala Arg Met Glu Thr Val
20 25 30

Leu Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser
35 40 45

Cys Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu
50 55 60

Glu Ala Ser Ser Leu Val Glu His Lys Leu Lys Asp Val Arg Glu Lys
65 70 75 80

Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys
85 90 95

Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser
100 105 110

His Pro Gln Phe Glu Lys
115

<210> 7
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 7
Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Thr Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Thr Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 8
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 8

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Gln Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Gln Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 9
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 9

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Val Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80
Ala Asp Leu Ala Arg Val Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95
Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110
Pro Gln Phe Glu Lys
115

<210> 10
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 10
Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15
Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Ile Glu Thr Val Leu
20 25 30
Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45
Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60
Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80
Ala Asp Leu Ala Arg Ile Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95
Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110
Pro Gln Phe Glu Lys
115

<210> 11
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 11

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Pro Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Pro Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 12

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 12

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Leu Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 13
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 13
tgcggcggtc tcaaattgaca cactgcgagg agg

33

<210> 14
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 14
gcctgaggat cccttgttagtg acgcgatcaa cg

33

<210> 15
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 15
ctacaggat cctcaggcac ccactgcgag

30

<210> 16
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 16
ctgttagggtc tcggcgctcg ggcaggaaac att

33

<210> 17
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sequence
encoding chelon

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<400> 17
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aagatggccg acttggcgcg catggaaacc gtgcgtctg aactcgtgtg cgactgccat 120
gcacgaaagg ggaatgtttc ctgcccgttgc atcgcgtcac tacagggatc ctcaggcacc 180
cactgcgagg aggccagcag cctggccgaa cacaagctca aggacgtgcg cgagaagatg 240
gccgacttgg cgcgcatgga aaccgtgtcgtc tctgaactcg tgtgcgcctg ccatgcacga 300
aaggggaaatg ttctctgccc gagcgcttgg agccaccgc agttcgaaaa ataa 354
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<210> 18

<211> 509

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:sequence
encoding chelon flanked by sequences derived from
plasmid

<400> 18

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ccatcgaaatg gccagatgat taattcctaa ttttgttga cactatcatt gatagagttt 60
tttaccact ccctatcagt gatagagaaa agtgaatgta atagttcgta caaaaatcta 120
gataacgagg gcaaaaaatg acacactgcg aggaggccag cagcctggcc gaacacaagc 180
tcaaggacgt gcgcgagaag atggccgact tggcgcgcattt gaaaccgtt ctgtctgaac 240
tcgtgtgcgc ctgccccatgca cgaaagggta atgtttctgtt cccgttgcattt gcgtcactac 300
aggatccctc aggcacccac tgcgaggagg ccagcagcctt ggcgaacac aagctcaagg 360
acgtgcgcga gaagatggcc gacttggcgc gcatggaaac cgtgtctgtt gaaactcggtt 420
gcgcctgcca tgacgaaatgggatgtttt cctgccccaggcgatc cgcttggagc caccggcagt 480
tcgaaaaata ataagcttgcgatc cctgtgaag 509
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